

The Cross-Cultural Adaptation of the Work Role Functioning Questionnaire to Turkish

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Abstract. The aim of this study was to perform a cross-cultural adaptation of the Work Role Functioning Questionnaire into Turkish. The cross-cultural adaptation was performed as it is recommended in the international guidelines with the following steps: forward translation, synthesis, back-translation, consolidation of translations with expert committee, and pre-testing. The pre-final version of WRFQ-TV was conducted with 40 office workers with no specific health problem. The translation process of the questionnaire was completed without any major problem. The lay out was changed because 65% of the participants did not completely understand the questionnaire. The data shows acceptable results regarding to the psychometric properties of the WRFQ-TV. Cronbach's alpha for each subscale was >0.77 , except for the physical demand scale and social demand scale. This study resulted that the cross-cultural adaptation of the WRFQ-TV was successful. Future studies may focus on reliability of the WRFQ-TV.

Keywords: cross-cultural adaptation, psychometric properties, perception of difficulty, work functioning.

1 Introduction

Instruments related to work functioning are needed to both evaluate outcomes of preventative interventions and to determine the effects of health problems –on individuals' work activities.

Work Role Functioning Questionnaire (WRFQ), which is based on Work Limitations Questionnaire (WLQ), was developed in USA (1,2). WRFQ measures the perceived difficulty during the work activities by amount of time. Additionally WRFQ can be used to determine the effects of the intervention. It has five subscales: Work scheduling, Output, Physical, Mental and Social demands subscales (1).

Because of possible cultural differences the proper cross-cultural adaptation process of the instruments should be held (3). A six stepped approach for the cross-cultural adaptation of the questionnaires was introduced by Beaton (2000). The steps of this approach are: forward translation, synthesis, back translation, expert committee review, pre-testing and the formulation of the final translated version. There are

several successful cross-cultural adaptations of the WRFQ in other cultural contexts such as Dutch (4), Brazilian Portuguese (5) and Canadian French (6).

The aim of this study was to perform a cross-cultural adaptation of the Work Role Functioning Questionnaire into Turkish.

2 Methods

Cultural adaptation of the survey was conducted in accordance with standard guidelines.

2.1 The Cross-Cultural Adaptation Process

Forward Translation: Items and instructions were forward translated by four independent translators whose mother tongue was Turkish. Only two of the four translators had a medical background and an opinion what the WRFQ measures. A synthesis questionnaire was developed by comparison of the translated questionnaires. A detailed report was written about how a consensus was established on each issue.

Back Translation: Synthesized version of the questionnaire was translated into Turkish in order to control semantic or conceptual errors by two translators.

Expert committee: By reviewing all the translations, reports and the original questionnaire, the expert committee produced the pre-final version of the questionnaire for the use of pre-test. The differences between the back translations and the original version of the questionnaire were examined and discussed about what causes the differences.

Pre-test: To evaluate the clarity and equivalence of the questionnaire within the Turkish culture, a pre-test was applied with 40 participants. Contrary to the other translated versions validity for healthy workers was evaluated in this study. Therefore, inclusion criteria established as follows: the absence of an acute musculoskeletal problem, currently working (at least 8 hours/day), aged of 18-65 years, be able to read and understand the Turkish language. After filling out the questionnaire, one of the researchers interviewed with the participants individually and asked 7 questions about the WRFQ. The interview questions were taken from the article of Dutch version of the Questionnaire (4). The research team reviewed the answers given by the participants and decided whether there is a need to make any changes.

Evaluation of the Psychometric Properties of the Pre-final Version of the Questionnaire

Scale and Item Internal Consistency: Mean and standard deviations were calculated for each subscale. Cronbach's alphas were calculated to evaluate the internal consistency. George and Mallery (2003) have identified the following rules :> 0.90 – Excellent, >0.80 – Good, >0.70 – Acceptable, >0.60 – Questionable, >0.50 – Poor, <0.50 – Unacceptable (7). Item-to-subscale correlations were calculated.

Validity: The content validity of the Turkish version of WRFQ was reviewed by the expert committee.

3 Results

3.1 Cross-Cultural Adaptation Process

The alteration of the lay out of the questionnaire was discussed in the process of forward translation. But no changes were made. Preserving the meaning of the items, item 1 (“required”), 2 (“Get going”) and 4 (“extra breaks or rests”) were changed. Item 14 (“pounds”) was revised in kilograms.

In the meeting after the back translation process, forward translation, back translation and the original version of the questionnaire were compared. It was decided that there is no need for any changes.

3.2 Pre-test

The pre-final version of the questionnaire was applied to 40 office employees (n=22 women and n=18 men). The mean age of participants was 41.6 (SD 10.4) and the average hours worked per week was 40.5 (SD 1.8) hours. Socio-demographic information is shown in Table 1.

Table 1. Participants’ socio-demographic characteristics (N=40)

	Total N=40	Women n=22 (%55)	Men n=18 (%45)
Age in years, mean (SD)	41.6 (10.4)	36.1 (6.9)	48.2 (10.2)
Working hours/week, mean (SD)	40.5 (1.8)	40.22 (1.06)	40.83 (2.57)

35% of respondents said that the instructions were not clear enough. Participants indicated that the cause of incomprehension of the instructions was the lay out of the questionnaire. According to the recommendations of the participants, the research team decided to inclusion of the phase of “I had difficulty” in each item. Instructions were revised and changed according to the new lay out.

Nearly half of the participants experienced difficulty in understanding the item 1. In order to obtain better understanding, it was included the phrase of “of my job”. A small insertion was made to item 13 which is mentioned by two participants. It was changed to “Going around the room and going various places while performing my job” from “Being on the move on your job and going to different places”. Even if it was mentioned only by one participant “train of thought” in the item 23 was changed to “line of thought” to enhance the Turkish adaptation. 1 to 2 participants reported difficulty in understanding items 5, 9, 11, 12, 16, 17, 18, 20 and 27. But the research team has concluded there is no need to change.

70% of the participants noted that the questionnaire provides a complete overview of their occupation. The remaining 30% replied by saying “no” or “not exactly”. Among the issues proposed by the participants physical environment and eye/ear health were included. In addition, the participants noted that they complete the questionnaire without getting bored and the length of the questionnaire was quite well.

3.3 Evaluation of the Psychometric Properties of the Final Version of the WRFQ-TV

Content Validity: The expert committee considered the content validity of the Turkish version of the Work Role Functioning Questionnaire as good. They concluded the questionnaire to be complete for especially for office workers. According the pre-test data acceptance rate of the WRFQ-TV was high.

Scale and Item Internal Consistency: Cronbach's alpha for each subscale was >0.77 , except for the physical demand scale ($\alpha=0.68$) and social demand scale ($\alpha=0.62$). Cronbach's alpha values are shown in Table2.

Table2. Cronbach's alpha coefficient for each subscale of WRFQ (Turkish version)

	Number of items	Cronbach's alpha	Range of item-to-subscale correlations
Work scheduling demands	5	0.84	0.55 – 0.77
Output demands	6	0.77	0.30 – 0.71
Physical demands	6	0.68	0.01 – 0.76
Mental demands	7	0.88	0.51 – 0.82
Social demands	3	0.62	0.27 – 0.63

The item-to-subscale correlations for Work scheduling demands and Mental demands subscales were ranged from 0.51 to 0.82. The item-to-subscale correlations for other subscales were ranged between 0.25 and 0.76, except item 14 in the Physical demands subscale.

4 Discussion

The purpose of this study was to conduct the cross-cultural adaptation of the WRFQ to Turkish and to make it usable to assess the perceived difficulty of Turkish healthy workers according work activities. The cross-cultural adaptation was performed as it is recommended in the international guidelines (3). By this means a Turkish version of the WRFQ which is equal the original version was obtained.

The aim of the changes made in the questionnaire right after the translations and pre-test was to optimize clarity. In Turkish version the lay out of the questionnaire also changed (rewrite the items as a full statement including difficulty each sentence). Gallasch et al also changed the lay out but the other two versions adhered to the original lay out (5).

There was difficulty in translating a few items and others are changed according to the pre-test results.

Although there was a consensus about the completeness of the questionnaire between the participants and the expert committee, several advices were made to improve the questionnaire. Among the recommendations there were work environment ergonomics and eye/ear health issues. Future studies may focus on exploration of items that may reflect Turkish work culture better and adaptation the questionnaire to specific occupations (such as stenographer or secretary).

The results reveal that the suitability for use and psychometric properties of Turkish version of the questionnaire are good. Cronbach's alpha for each subscale was >0.77 , except for the physical demand scale and social demand scale. The Cronbach's alpha for social demands subscale were also lower compared to other subscales in the other translated versions of the questionnaire. Although the physical demands scale internal consistency was good in the other versions, in Turkish version it was questionable (0.68) by a narrow margin. According to the statistical analysis, item 14 was responsible for the fall of the value. Without item 14 the Cronbach's alpha value increased to 0.88. Although the data obtained from this study was promising, more studies should be done with inclusion of more participants and different professional groups. Future studies should examine the psychometric properties, test-retest reliability and validity in more detail.

References

1. Amick III, B.C., Lerner, D., Rogers, W.H., Rooney, T., Katz, J.N.: A review of health-related work outcome measures and their uses, and recommended measures. *Spine* 25, 3152–3160 (2000)
2. Lerner, D., Amick III, B.C., Rogers, W.H., Malspeis, S., Bungay, K., Cynn, D.: The Work Limitations Questionnaire. *Med. Care*. 39, 72–85 (2001)
3. Beaton, D.E., Bombardier, C., Guillemin, F., Ferraz, M.B.: Guidelines for the process of crosscultural adaptation of self-report measures. *Spine* 25, 3186–3191 (2000)
4. Abma, F., Amick III, B.C., Brouwer, S., van der Klink, J.J., Bültmann, U.: The cross-cultural adaptation of the Work Role Functioning Questionnaire to Dutch (in publishing process)
5. Gallasch, C.H., Alexandre, N.M.C., Amick III, B.C.: Cross-cultural Adaptation, Reliability, and Validity of the Work Role Functioning Questionnaire to Brazilian Portuguese. *J. Occup. Rehab.* 17, 701–711 (2007)
6. Durand, M.J., Vachon, B., Hong, Q.N., Imbeau, D., Amick III, B.C., Loisel, P.: The cross-cultural adaptation of the Work Role Functioning Questionnaire in Canadian French. *Int. J. Rehabil. Res.* 27, 261–268 (2004)
7. George, D., Mallery, P.: *SPSS for Windows step by step: A simple guide and reference*. 11.0 update, 4th edn. Allyn& Bacon, Boston (2003)